REMARKS

Claims 1, 3-8, 10-15 and 17 are pending. Claims 1, 8, 15, and 17 are the independent claims. The remaining claims depend from the aforesaid independent claims. Only the independent claims have been amended by this response.

In addition with this response applicant files herewith a Supplemental Information Disclosure Statement setting forth references recently recited in a parallel Japanese application. Consideration of these additional references is respectfully requested.

The claims have been amended to specifically state that the reinforcing method and construction is directed to a metal tank specifically designed for the storage of a static fluid subjected to external forces, i.e. seismic or paraseismic stresses. In this regard, the metal tank includes a closed base or base surface which is a part of the metal tank. In other words, the metal tank is not designed for the free and continuous flow of fluid therethrough in a manner of a pipe or tube. Rather it is a type of storage tank in which static fluid is stored. The base surface is thus a closed base surface and is joined to an external metal tank wall or an external surface having a height with an axis extending in the direction of the height. The base or base surface is designed for placement on the ground which may be the origin of the external seismic or paraseismic stresses. The external surface is surrounded, over at least a part of its height, with carbon fibre fabric having aligned fibres generally perpendicular to the axis. Further the fibres are bonded to the tank. As noted the base is thus placed on the ground and as such may be subjected to seismic or paraseismic stresses. To counteract the effect of such stresses on the metal tank, and to preclude buckling of the metal forming the tank, the external surface extending from the closed base is provided with the arrangement of bonded carbon fibres oriented as specifically claimed.

In the recent rejection, the examiner relies upon the Fawley reference U.S. Patent No. 4,676,276 in combination with Nishimura U.S. Patent No. 5,758,796 and further in combination with an ancillary reference to Toth. It is clear, that the Fawley reference is directed to a pipe which is not closed at either end, but rather which is designed for the continuous or dynamic internal flow of fluid therethrough. Further, it is clear that the Fawley reference is directed to a system to slow fracture of a pipe in the axial direction. Thus, the pipe is protected against fractures which might occur and extend longitudinally in the direction of the pipe passage. (See column 5, line 34 et seq.). Additionally, hoop stress due to dynamic internal flow is taken up by the wrapping taught in the Fawley reference. The stresses counteracted by the Fawley reference are related to the burst strength of the pipe in a longitudinal direction.

This is significantly different from the subject matter as now claimed. It is structurally different inasmuch as there is no closed base surface in the Fawley method and structure. It is physically different inasmuch as the present arrangement, as claimed, is designed to preclude buckling of the metal forming the tank in which static fluid is being stored. The potential buckling would result because of a seismic or a paraseismic event. The present claims are not directed to preclude bursting of the tank, per se, but rather are directed to means and method to protect against the failure of the tank as a result of stresses which cause the metal to buckle or fold in a seismic event acting upon the tank. Because the fluid is a static fluid retained in the tank, the types of stresses are significantly different from those encountered in a dynamic situation involving pipes wherein neither end of the pipe is taught as being closed. The environment of the structure taught in the Fawley reference is thus significantly different. Clearly it does not meet the limitation of having a closed end that is provided to sit on the ground so that the metal tank can act as a storage vessel.

Even if a pipe as described in the Fawley reference were placed vertically, there would be no base associated therewith and clearly no closed base capable of lying on the ground and holding static fluid. The pipe as closed in Fawley is arranged for dynamic fluid transport only, not static fluid storage and the engineering effect of fluid flow versus the engineering effect of seismic forces is considerably distinct and different. One would therefore not expect the method and construction presently claimed to be an obvious solution based upon the Fawley reference.

The reference to Nishimura et al. U.S. Patent No. 5,758,796 does not provide information or structure which resolves or addresses the engineering issues faced by a tank construction exposed to seismic and paraseismic stresses. Specifically, the pressure vessel disclosed in Nishimura et al. provides for an internal wall which is typically a flexible metal cylindrically shaped foil wall that is configured with generally semi-circular end sections. The flexible metal foil or sheet is typically covered by at least two layers of reinforcing material. The patent teaches the requirement of two layers in order to provide for reinforcement of the entire container. One of the layers is wound in a helical manner and a second layer is wound in a hooped manner. Both of the layers are fibre reinforced plastics. In the case of Nishimura et al., the fibre involved is a glass fibre which may be impregnated with the epoxy resin.

It is important in the Nishimura reference that the walls forming the vessel be elastic. This is taught, for example, at column 2, beginning at line 66. Thus, the wall is designed to flex in response to an increase or decrease in pressure. In other words, an important feature of the Nishimura reference is the elasticity of the material forming the wall. There is no suggestion that the wall structure has any relevance with regard to protection against seismic stresses. In fact, the stresses involved in a device of the type taught in Nishimura appear to be a uniform increase and/or decrease

of pressure within the vessel due to increase or decrease of pressure upon fluid being injected into the vessel. This is completely counter to the problem addressed by the present invention and the solution associated therewith.

With the present invention, a static amount of fluid is retained or stored within a metal tank and the objective is to preclude external seismic (non-uniform) stresses from causing the metal tank to buckle. This is a totally distinct purpose and method and structure. That is, the Nishimura is directed to a method in which to address uniform changes in internal stresses due to the pressurization of a foil storage vessel. The present invention is directed to a method to counter external stresses upon a storage tank with a base lying on the ground wherein those external forces and stresses are a result of a seismic or paraseismic event, an event which hardly can be declared as uniform.

The same can be said with respect to the previously discussed Fawley reference. Again, the stresses are derived from conditions internal of the pipe in Fawley. They are not derived from conditions external of the pipe acting upon material flowing in the pipe. It is a reverse of the situation addressed by the present invention which is designed to counteract externally originating stresses. The source of stress associated with the claimed invention of the present invention is external and results from the external forces acting upon the metal storage tank and its contents causing potential damage, buckling and failure of the metal tank. Thus, the present invention is directed to solutions to a problem not suggested, anticipated, or even referenced in the prior art cited by the examiner.

In view of the foregoing amendments and remarks, therefore it is believed that the claims of the present application are patentably distinct. Reconsideration thereof and passage to allowance is earnestly solicited.

Respectfully submitted,

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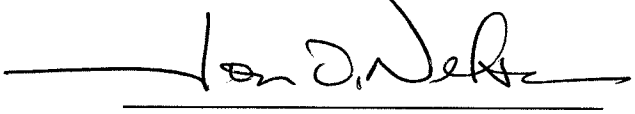
Dated: August 27, 2009 By: 

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